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STS Consultants, Ltd.
Solutions through Science & Engineering

March 23, 1999

Sent via Facsimile (312) 886-4071 and U.S. Mail

Mr. Fredrick A. Micke, P.E.
On-Scene Coordinator
ERB Section #3
United States Environmental Protection Agency, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Re: Proposed MCL River East Center Development at the Former Lindsay Light II Site, Chicago, Illinois, STS Project No. 24418-RR, Correspondence No. 026

Dear Mr. Micke:

Pursuant to our meeting of March 10, 1999, we are submitting to you these addenda to our Work Order dated March 4, 1999. Specifically, these addenda address the following:

- Asphalt Screening Procedure
- Ludlum Model 193 Monitor Use Procedure
- Highway Agreement Acquisition
- Water Discharge Permit Acquisition
- General Site Excavation Procedure Revisions
- Site Air Monitoring Procedure
- Site Management Structure
- Sub-Contractor Experience and Personnel Credentials

These addenda supercede related sections of the Work Order submitted March 4th . Upon acceptance of the above addenda, a revised Work Order, complete with these addenda, will be submitted for your review and approval.

Please contact us at (847) 279-2500 if you have any questions or comments.

Respectfully,

STS CONSULTANTS, LTD.

Richard G. Berggreen, C.P.G.
Principal Geologist

Steven S. Michels, S.E.
Project Engineer

cc: R. Grueb - MCL
V. Oleskiewicz - Baker & McKenzie
D. White - Kerr-McGee
T. Jensen - Morse-Diesel

R E P O R T

MCL Companies
455 East Illinois Street
Suite 565
Chicago, Illinois 60611

Work Order for Soil Management
Open Excavation
Addenda

River East Development
Lindsay Light II Site
Chicago, Illinois

STS Project No. 24418-RR

March 23, 1999

Asphalt Screening Procedure

Reference: Section 4.2 Initial Site Excavation
(Existing Text)

> The first excavation on site will lower the overall site elevation approximately 5 ft. The asphalt pavement and base course will be removed from portions of the site, beginning at the eastern one-third of the site with rubber-tired or tracked front-end loaders and loaded directly into semi-trailer dump trucks. No thorium contamination is expected within the asphalt or base course. Representative samples of the asphalt will be crushed on site and screened for gamma radiation, with samples submitted for radiological analysis.

(Proposed Revised Text)
The first excavation on site will lower the overall site elevation approximately 5 ft. The asphalt pavement and base course will be removed from the Lake Lindsay area and other previously remediated areas, and shipped to appropriate facilities for non-contaminated material disposal. Areas that were not remediated through previous efforts shall be screened and sampled in accordance with previously approved Scoping and Planning documents, Removal Action Work Order Document 100, Section 4.1.2.1, page 4-6.

An additional attachment section shall be included in the Work Order to further define the asphalt screening procedures. This procedure is included as Attachment 1 of these addenda.

Ludlum Model 193 Monitor Use Procedure

An additional attachment section shall be included in the Work Order to provide direction in the appropriate and proper use of the Ludlum Model 193 survey meter. This attachment will be referenced in Section 2.4 or the Work Order and is included as Attachment 2 of these addenda.

Highway Agreement Acquisition

This agreement is currently in its final stages of completion. Representatives from the EPA, the City of Chicago,, and Kerr-McGee are expected to meet this week to finalize the

agreement. We will prepare a Health and Safety Plan to accompany the Agreement. The Plan that will accompany the Agreement will be less stringent than the Plan governing the site wide excavation.

Water Discharge Permit Acquisition

A water permit has been issued by the City of Chicago, Department of Sewers. A copy of that permit was forwarded to USEPA by MCL.

General Site Excavation Procedure Revisions

Reference Section 3.0 Thorium Impacted Soil Management
(Existing Text)

> Other previously unknown thorium-contaminated locations may be identified by the soil screening at 2 foot depth intervals as the site-wide excavation proceeds, screening of test pits at the caisson locations prior to the caisson drilling, or soil screening during excavation of portions of the slurry walls.

(Proposed Revised Text)
Other previously unknown thorium-contaminated locations may be identified by the soil screening at 2 foot depth intervals as the site-wide excavation proceeds, screening of test pits at the caisson locations prior to the caisson drilling, or soil screening during excavation for the installation of slurry wall guide walls.

Reference Section 4.4 Guide Wall Construction/Slurry Wall Excavation, paragraph 2
(Existing Text)

> The purpose of a guide wall is to maintain the vertical and plan alignment of the slurry wall excavation and installation and confine the slurry as the excavation proceeds. The guide wall consists of a parallel set of concrete walls approximately 4 feet in total height, extending 1 foot above grade and 3 feet below grade. The walls are formed and poured prior to beginning the slurry wall panel excavation, and serve to keep the excavating equipment in line with the caissons and constrain the width of the slurry wall excavation. It should be noted that the majority of the fill material will be removed prior to beginning excavation of the slurry wall panels. Given the site-wide

excavation, dropping the site grade by 5 feet and the guide wall extending an additional 3 feet, most of the 8 to 10 foot thick fills will be removed.

(Proposed Revised Text)
The purpose of a guide wall is to maintain the vertical and plan alignment of the slurry wall excavation and installation and confine the slurry as the excavation proceeds. The guide wall consists of a parallel set of concrete walls approximately 4 feet in total height, extending 1 foot above grade and 3 feet below grade. The walls are formed and poured prior to beginning the slurry wall panel excavation, and serve to keep the excavating equipment in line with the caissons and constrain the width of the slurry wall excavation. It should be noted that the majority of the fill material will be removed prior to beginning excavation of the slurry wall panels. Given the site-wide excavation, dropping the site grade by 5 feet and the guide wall extending an additional 3 feet, most of the 8 to 10 foot thick fills will be removed. Since excavated material from test pits for the caissons and the slurry wall guide walls around the perimeter of the site will be screened down to or very near the naturally occurring soils, screening of slurry wall excavate/spoil will not be necessary except where the wall crosses into the Lake Lindsay area.

Reference Section 4.4 Guide Wall Construction/Slurry Wall Excavation, paragraph 5
(Existing Text)

Excavation of the slurry wall is conducted with a clam excavator. Screening of the material excavated in the Lake Lindsay area will occur at three points. First, screening will be conducted as soil from the fill material is excavated to 10 foot depth in the trench. This material will be screened in the clam excavator bucket as it is excavated. Screening will be conducted with 2 x 2 NaI gamma detector. Material exhibiting elevated gamma radiation above the 7.1 pCi/g threshold level will be placed in a staging area on plastic liners to drain before placement in a transport box. Run-off from the clam shell spoil which is determined to be contaminated will be contained with portable berms, and directed to the water collection system prior to discharge to the MWRDGC. Water will be treated according to MWRDGC guidelines before being discharged. Specific procedures for handling this material are described in Section 4.7. The soil staging area and water drainage pathway will require screening and clearance following removal of the contaminated trench spoil.

(Proposed Revised Text)
Excavation of the slurry wall is conducted with a clam excavator. There will be no screening of material removed from slurry wall panels outside of Lake Lindsay since these areas will be adequately screened through caisson test pits and guide wall excavation/installation. Screening of the material excavated in the Lake Lindsay area will occur at three points. First, screening will be conducted as ~~soil from~~ the fill material is excavated ~~to 10 foot depth~~ in the trench. This material will be screened in the clam excavator bucket as it is excavated. Screening will be conducted with 2 x 2 NaI gamma detector. Material exhibiting elevated gamma radiation above the 7.1 pCi/g threshold level will be placed in a staging area on plastic liners to drain before placement in a transport box. Run-off from the clam shell spoil which is determined to be contaminated will be contained with portable berms, and directed to the water collection system prior to discharge to the MWRDGC. Water will be treated according to MWRDGC guidelines before being discharged. Specific procedures for handling this material are described in Section 4.7. The soil staging area and water drainage pathway will require screening and clearance following removal of the contaminated trench spoil.

Air Monitoring Procedure

Based upon previous air monitoring experience at this site, we are attaching a revised Air Monitoring Procedure for your review. This Procedure is included as Attachment 3 to these addenda.

We are proposing a revision of sampling rate from 4 CFM to 10 liters/min., which will allow the use of membrane filters rather than fiberglass filters. Further, we have proposed a change in the collection time from at least daily to at least weekly. This will allow the sampling to meet the minimum detectable air concentrations previously specified for Thorium 232 ($4x10^{-15}$ µCi/ml).

Site Management Structure

A revised Project Organization Chart identifying the RSSI project representative is included as Attachment 4 to these addenda.

Sub-Contractor Experience and Personnel Credentials

In response to your inquiry regarding the proposed Health Physics Sub-Contractor's experience on similar projects, we have included a list of representative project summaries. These represent thorium contamination projects and health physics surveys similar to the proposed work scope. We have also provided the Health Physics Sub-Contractor Corporate Qualifications for review. This is included as Attachment 5 to these addenda, and will be incorporated into Attachment 5 of the revised Work Order.

Attachment 5 of these addenda also contains additional resumes of recent and proposed hires for this contractor in the event that staffing needs at the site require additional personnel. It is our understanding that the UAO provides for USEPA approval of the Project Coordinator for the Respondents. It is our understanding, however, that USEPA will not be reviewing/approving individual employees involved with this project.

ATTACHMENT 1

Asphalt Screening Procedure

Asphalt Surveying Procedure

1. Purpose

This procedure describes the methods to be used for surveying asphalt after it has been torn up.

2. Scope

This procedure applies to asphalt that existed before the previous restoration activities. Asphalt that was poured on clean fill is assumed to clean. The methods described in this procedure will follow the previous Removal Action Work Plan and the methods Kerr-McGee used to clear the asphalt as clean.

3. References

3.1 Lindsay Light Removal Action Work Plan 100-1 section 4.1.2.1

3.2 Quality Assurance Project Plan Document 200 from the Scoping and Planning Documents

4. Equipment and Materials

The following equipment may be used as part of the survey programs. Other equipment may be substituted if necessary because of availability of the items listed or the conditions encountered at the site.

4.1 Ludlum Model 193 with 2" by 2" NaI probe

4.2 Approved lab for soil analysis

5. Instructions

5.1 Remove uncontaminated asphalt and clean overburden lying above potentially radioactive soil.

Note: Asphalt that was poured over clean backfill is not subject to surveying or testing.

5.2 Survey asphalt and overburden with a gamma meter with NaI probe

5.2.1 After the asphalt is removed, it may be placed in a pile. Survey sections of the pile where the overburden and/or the bottom of the asphalt is exposed.

5.3 Take representative samples of the asphalt and overburden.

5.4 Radiological Analysis

5.4.1 Follow the Quality Assurance Project Plan Document 200 to analyze the samples.

5.4.2 If the results are below 7.1 pCi/gm, the asphalt can be removed as clean.

ATTACHMENT 2

Ludlum Model 193 Monitor Use Procedure

Ludlum 193 Procedure

1. Purpose

This procedure describes the methods to be used for surveying with the Ludlum 193 meter with a model 44-10 2" by 2" NaI(Tl) gamma scintillator.

2. Scope

This procedure applies to surveying soil in-situ, in backhoe buckets or on other equipment that lifts soil out of the ground such as augers. Positive results will be checked by the lead health physicist to ensure the accuracy of the readings. Positive results will trigger the Authorized Project Coordinator to direct the establishment of an exclusion zone and removal of the contaminated soil. All personnel who use the meter must read and understand sections 1-5 of the Ludlum 193 instruction manual.

3. References

3.1 Ludlum 193 manual

3.2 Scoping and Planing Documents for Excavation and Restoration Activities (S&P Documents)

4. Equipment and Materials

The following equipment may be used as part of the survey programs. Other equipment may be substituted if necessary because of availability of the items listed or the conditions encountered at the site.

4.1 Ludlum 193 meter with a model 44-10 2" by 2" NaI(Tl) gamma scintillator

4.2 Daily Instrument Check Sheet (attached)

4.3 Calibration standard provided by Kerr-McGee in West Chicago, IL

5. Instructions

5.1 Calibration to Kerr-McGee Standard

Initial meter calibration must already be performed. Calibration to the Kerr-McGee standard is only adjusted by the health physics supervisor or equivalent.

5.1.1 Perform the daily instrument checks listed in the section 5.3.

5.1.2 Record the background radiation level.

5.1.3 Record the level of background plus the Kerr-McGee standard.

5.1.4 Calculate the radiation level of the Kerr-McGee source.

5.1.5 Calculate the radiation level per pCi/gm of Radium.

5.1.6 Record the radiation level for 5.6 pCi/gm of radium. This will be used for the alarm setpoint.

5.2 Alarm setpoint

The alarm setpoint is only adjusted by the health physics supervisor or equivalent.

5.2.1 After performing the daily instrument check, record the background in the Maximum Background Level at the top of the Daily Instrument Check Sheet.

If this level is exceeded with future use of the instrument, the alarm setpoint is recalculated and a new Daily Instrument Check Sheet started.

5.2.2 Calculate the meter level that corresponds to 5.6 pCi/gm of radium. This includes a safety factor for the clean up criteria of 7.1 pCi/gm.

5.2.3 Expose the instrument to a check source. Adjust the alarm "SET" potentiometer until the alarm is initiated for the calculated level.

5.2.4 Remove the source and depress the "RESET" button to disable the alarm. Slowly increase the meter reading with the check source to confirm the desired alarm set point. Readjust as necessary.

5.3 Daily Instrument Check and Set-Up

Any deviations from what is expected must be brought to the health physics supervisor's attention before the instrument may be used.

5.3.1 Visual Inspection

Inspect the instrument to ensure there is no damage to the instrument or probe.

5.3.2 Battery Check

5.3.2.1 Ensure both toggle switches are in the up position, pointing to AUD "ON," and "F." Rotate the Range selector switch to the "BAT" position. Ensure the pointer deflects above the vertical mark in the "BAT OK" region. Select the x10 range.

5.3.2.2 The batteries are to be replaced every month.

5.3.3 Background Check and Background Alarm

5.3.3.1 After background is established for 8 seconds, record the background level. Ensure the background level is below the maximum background level specified on the Daily Instrument Check Sheet.

5.3.3.2 The background must be recorded each time the instrument is turned on or reset.

5.3.4 Source Check

5.3.4.1 Expose the detector to the check source as specified on the instrument. Ensure the intermittent background audio and visual alarm is initiated followed by the constant alarm.

5.3.4.2 Record the check source response on the Daily Instrument Check Sheet.

5.3.4.3 If the instrument differs more than 20% from the stated expected response, contact the health physics supervisor.

5.3.5 Documentation

All fields in the Daily Instrument Check Sheet table must be filled out before the instrument is used each day. Only the time and background level need to be filled during that same day when the instrument is reset or subsequently turned on.

5.4 Survey Techniques

5.4.1 Soil in-situ

Follow procedure SOP-210 from the S&P Documents.

5.4.2 Backhoe buckets

Follow procedure SOP-210 over the exposed soil. Do not survey through the bucket. If there is more than two feet of soil in the bucket. resurvey the soil after it has been emptied.

5.4.3 Augers

Follow procedure SOP-210 while the soil is on the auger on all sides. If the auger is more than four feet in diameter, resurvey the soil after it has been spun off.

5.4.4 Other applications

In general, follow procedure SOP-210 while ensuring the thickness of soil being surveyed is no more than two feet.

5.5 Investigating Positive Results

5.5.1 Background alarm

Occasionally, fluctuations in background will cause the instrument to beep. This is a normal function of the instrument. Multiple beeps indicates an increase in the radiation level and possibly the presence of radium. If the instrument responds with multiple beeps, stop and resurvey the area. If multiple beeps are clearly present, stop the operations and telephone the health physics supervisor and then the Authorized Project Coordinator.

This practice may be modified in the field with health physics and Authorized Project Coordinators concurrence. This is expected in known contamination areas such as Lake Lindsay.

5.5.2 Range alarm

The range alarm is a steady alarm that is actuated after the background alarm when radiation levels indicate the possible presence of radium in excess of 5.6 pCi/gm. If the instrument responds with a steady beep, stop the operations and telephone the health physics supervisor and then the Authorized Project Coordinator.

This practice may be modified in the field with health physics and Authorized Project Coordinator's concurrence. This is expected in known contamination areas such as Lake Lindsay.

RSSI

6312 West Oakton St.
Morton Grove, IL 60053-2723
847-965-1999

Daily Instrument Check Sheet

Instrument: Make: Ludlum Model: 193 Serial Number _____ Probe Ludlum 44-10 Cal Date__/__/__
Maximum Background Level_____ Instument Used By _____

Date	Time	Initials if different from above	Toggle Switches Up, Scale on 10x	Battery OK	Background Level	Check Source Response

Comments _____

_____

_____

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ATTACHMENT 3

Air Monitoring Procedure

Air Monitoring Procedure (SOP-212)

1. Purpose

This procedure describes the methods to be used for sampling and measurement of airborne radioactive materials. The measurement data will be used to evaluate the effectiveness of health and safety measures at the work site. Controls will be established as necessary based upon the measurements to ensure regulatory compliance and appropriate protective measures for workers and the public.

2. Scope

This procedure applies to field activities that may generate dust or airborne emission from the site. The health physics sub-contractors will establish four site environmental monitoring stations to measure background air quality in the area. The objectives of the air sampling program described in this plan are to collect sufficient air samples during soil excavation to assure that excessive airborne contaminated dust is not being released and that air quality at the worker's breathing zone is as low as reasonably achievable (ALARA).

3. References

3.1 Code of Federal regulations, Title 10, Part 20, Standards for Protection Against Radiation.

3.2 IAC application (page 6-2 of environmental analysis)

3.3 Kerr-McGee Environmental Air Monitoring Program Appendix I.

4. Equipment and Materials

The following equipment may be used as part of the survey programs. Other equipment may be substituted if necessary because of availability of the items listed or the conditions encountered at the site.

4.1 Environmental Monitoring Stations

4.2 Nuclear Chicago Model 110 Alpha Counter with a Ludlum 2200 Scaler

4.3 Nuclear Chicago Spectro Shield proportional counter

4.4 Daily Work Area Air Monitoring Sheet, Form SOP 212-1.

5. Instructions

5.1 Site Air Monitoring Locations and Requirements

5.1.1 Four air monitoring stations shall be used during excavation activities.

5.1.2 Air monitoring locations will be located near the middle of each edge of the site.

5.1.3 Air shall be drawn into the sample at a height between 1 and 2 meters above the ground.

5.1.4 The minimum detectable activity (MDA), measured in mCi/ml, shall be re-established following equipment modification or replacement.

5.1.5 Air sample filters shall be collected at least weekly during excavation activities.

5.1.6 Flow rate through samples should be 10 liter/min. to meet the MDA for effluent release. This flow rate will allow the use of membrane filters instead of fiberglass filters.

Note: Some particulates become embedded in fiberglass filters. This will degrade the energy of alpha emitters making it impossible to distinguish the difference between alpha and beta radiation when measured with a counter.

5.2 Personnel Air Sampling Requirements

5.2.1 Workers will wear personnel air monitors to evaluate the air quality at the worker's breathing zone.

5.2.2 Air sample filters shall be collected at least daily during excavation activities.

5.2.3 Engineering controls such as dust control will be used to control airborne hazards before respiratory protection is considered..

5.3 Radiological Analysis

5.3.1 Radiological analysis shall be performed in accordance with the West Chicago Facility Quality System procedures.

5.3.2 The Nuclear Chicago model 110 alpha counting system is the primary counter. The Nuclear Chicago Spectro Shield is used for backup. The alpha counting effectiveness and MDAs for these systems are similar to the Gamma Products G5000 and Ludlum Model 2929/43-10 listed in the last revision to this procedure.

5.3.3 Samples will be analyzed for gross alpha concentration with counting performed in lab space immediately adjacent to the site. Air filters are counted for a minimum of 30 minutes for Th-232 alpha and 3 minutes for Pb-212.

5.3.3.1 A five-hour minimum waiting period from the time of collection to the time of counting will be observed to allow decay of short-lived uranium progeny and ingrowth of short-lived thorium progeny.

5.3.4 Contribution of site activities to airborne radioactivity shall be determined as follows:

5.3.4.1 The net counts are divided by the counter efficiency and volume of the sample to obtain the air concentration.

5.3.5 Site Air Monitoring Analysis

5.3.5.1 The air concentration will be compared to the most limiting effluent concentration limit for Thorium-232 (4×10^{-15} µCi/ml).

5.3.5.2 Samples exceeding the effluent concentration limit will be further evaluated to ensure that doses to individual members of the public are in compliance. Evaluations may include additional analyses to determine specific isotopic concentrations.

5.3.5.3 Annual average concentrations of radioactive material released in airborne effluents shall not exceed the effluent concentrations as specified in the January 1, 1994 revision of 32 IAC 340.

5.3.6 Personnel Air Sampling Analysis

5.3.6.1 The air concentration will be compared to the most limiting derived air concentration (DAC) limit for Thorium-232 (5×10^{-13} µCi/ml).

5.3.6.2 Samples exceeding the concentration limit will be further evaluated to ensure that doses to individual individuals are in compliance. Evaluations may include additional analyses to determine specific isotopic concentrations.

5.4 Investigation

5.4.1 The Authorized Project Coordinator from STS or designee will perform investigations and responses consisting of one or more of the following actions in the event that Action Levels are exceeded.

5.4.1.1 Verification of laboratory data and calculations.

5.4.1.2 Analyze and review probable causes.

5.4.1.3 Evaluate need for reanalysis or additional analysis on original sample.

5.4.1.4 Evaluate need for resampling.

5.4.1.5 Evaluate need for sampling of other pathways.

5.4.1.6 Evaluate need for notifications to regulators

5.4.1.7 Dose assessments.

5.4.2 All investigations shall be documented.

5.5 Quality Control

5.5.1 All air samplers shall be in current calibration.

5.5.2 Sample chain-of-custody standard operating procedures will be followed for all samples.

5.6 Sample Archive and Disposal

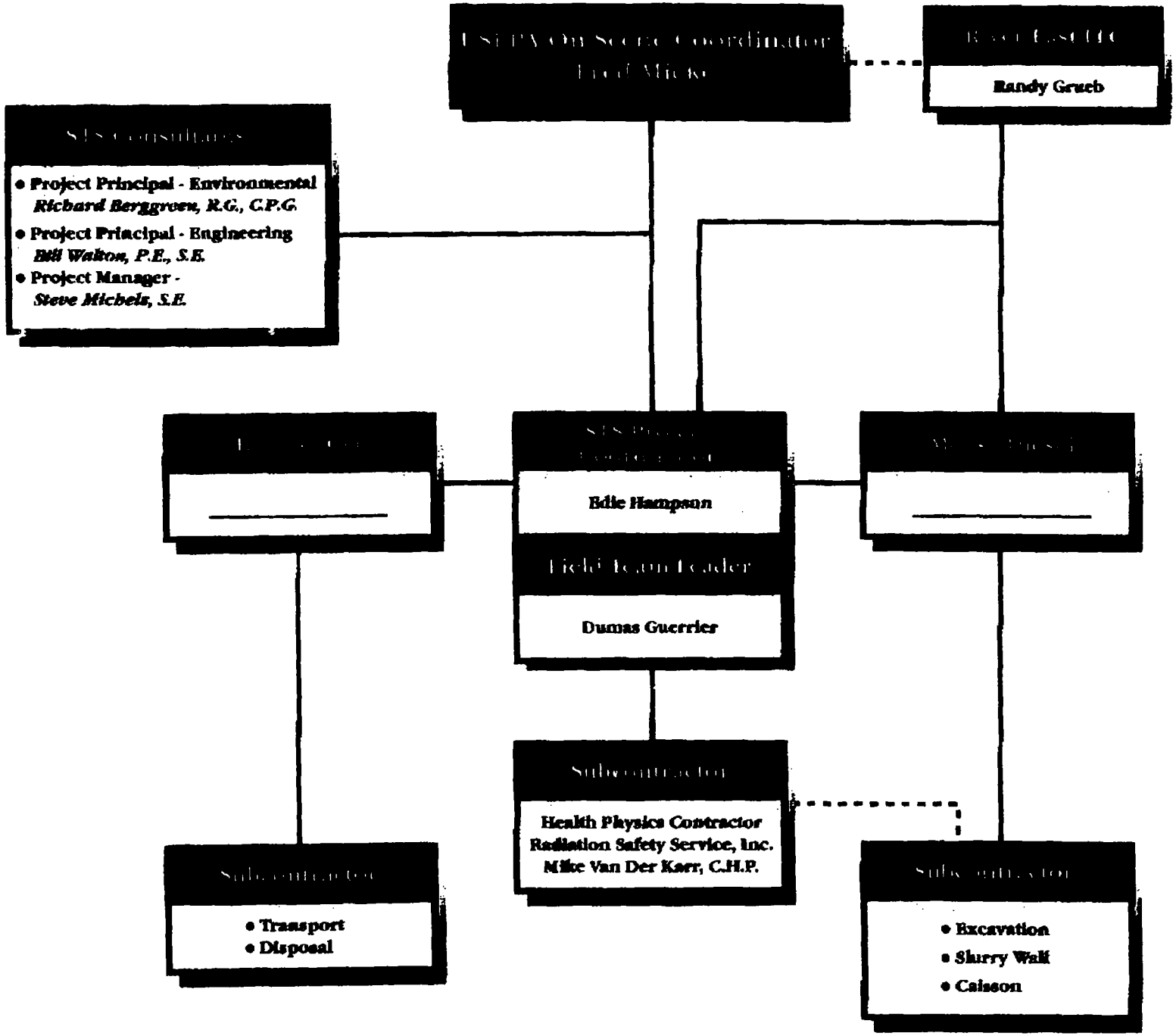
5.6.1 All samples will be archived on-site in a suitable area until released by the Authorized Project Coordinator from STS.

5.6.2 Samples will be disposed of according to the Sample Handling, Packages and Shipping SOP (SOP-218).

ATTACHMENT 4

Site Management Structure
Project Organization Chart

Attachment 1



ATTACHMENT 5

Site Personnel - Additional Resumes

RSSI Relevant Experience with Thorium Contaminated Soils

Decontamination and Stabilization of the City of West Chicago Sewage Treatment Facility Site circa 1983-86

This job is essentially identical to the current project. Characterized thorium residuals on approximate 27 acre site. Located extensive contamination not previously identified from previous surveys. Provided bore hole surveys for site. Wrote EPA approved radiation safety manual for project. Trained personnel for HP aspects of job. Supervised HP aspects and HP personnel of decontamination and remediation of this large site. Supervised the consolidation of thorium residuals as directed by USEPA. Performed personnel and environmental air monitoring to demonstrate doses were maintained ALARA. 75% of our work was paid by USEPA. Managed site to prevent removal of contamination on equipment and personnel. Provided laboratory analysis for air samples.

161 East Grand, Chicago circa 1981-1994

Performed surveys which first identified the building as one containing thorium residuals. Performed the first surveys in building to characterize the distribution. Performed personnel monitoring and radiological safety and health surveys during two construction projects. Performed air monitoring for thoron (Radon-220) and its daughters to demonstrate the buildings compliance with the standards for occupational dose in 29CFR1910.96 (1096).

West Chicago Residential Properties circa 1980

RSSI performed surveys of residential properties in West Chicago for the City of West Chicago to locate and identify elevated radiation levels. Survey equipment included detectors with NaI probes and energy compensated GM meters. As a result, approximately 15 new properties, not previously identified by federal agencies, were identified as contaminated with thorium residuals.

West Chicago rights of way 1983 to Present

RSSI performs rights of way surveys for the City of West Chicago before street improvements begin for the city on a regular and emergency basis. Survey equipment includes detectors with 2 by 2 NaI probes and tissue equivalent dose rate meters.

West Chicago Bols Opera House 1979

RSSI performed a comprehensive survey of the Bols Opera House for the owner identifying contamination and locating significant quantities of Atomic Energy Act material including thorium residuals previously not located by other agencies in releasing the building from license. Surveys included gamma surveys and surface contamination surveys for thorium residuals and its daughters. Ra-224 and thorium compounds were located in containers in walls.

State of Michigan Solid Waste landfill contaminated with MgTh wastes circa 1993

Developed Health and Safety Plan to enable penetration of thorium containing wastes to monitor hazardous material in the landfill. Prepared application and obtained NRC license to establish NRC jurisdiction on site.

Utah Site Contaminated with Thorium and Hazardous Materials circa 1994

Surveyed and analyzed soils from a 63 acre site in Utah contaminated with thorium and hazardous materials. Analyzed soil samples. Combined surveys and lab analysis results with researched historical information to characterize distribution of thorium on the surface and at depth.

RSSI

6312 West Oakton Street
Morton Grove, IL 60053-2723
847-965-1999
Fax 847-965-1991

JENNIFER L. ALLORE

CURRICULUM VITAE

EXPERIENCE:

RSSI **3/99 - Present**
Health Physicist

- Perform contamination surveys for radionuclide contamination, assessing the specific radionuclides present, and decontaminating as necessary
- Decommission radioactive waste storage area
- Assisting in developing plan for decontamination of pharmaceutical facility
- Received basic training in operational health physics

University of Michigan **1996 - 1998**
Research Technician

- Compared maximum allowable isotope soil concentrations proposed by the US EPA to minimum detectable levels found at cleanup sites
- Utilized RESRAD to determine maximum allowable soil concentrations
- Simulated depth dose curves for thirteen different materials using the CEPXS/ONEDANT code package

EDUCATION

University of Michigan, Ann Arbor **1997, 1998**
Degree: Master of Science in Engineering, 1998
Degree: Bachelor of Science in Engineering, 1997
Concentrations: Nuclear Engineering and Radiological Sciences

COURSES Radiation Detection and Measurements Lab, Radiological Health Engineering Fundamentals, Internal Dosimetry, Dosimetry Lab, Radiation Shielding, Medical Radiological Engineering, Radiation Biology, Medical Imaging, Anatomy

Professional associations:
Member, Student Branch of the American Nuclear Society
Member, National Health Physics Society

RSSI

6312 West Oakton Street
Morton Grove, IL 60053-2723
847-965-1999
Fax 847-965-1991

ERIC S. PITTMAN

CURRICULUM VITAE

EXPERIENCE:

RSSI **3/99—Present**
Health Physicist

- Perform contamination surveys for radionuclide contamination, assessing the specific radionuclides present, and decontaminating as necessary
- Decommission radioactive waste storage area
- Laboratory sample analyses for radioactive materials including high resolution gamma spectroscopy, leak test and gross alpha and beta counting.

Whirlpool Corporation West Lafayette, Indiana **1997 - 1999**
Quality Control

- Led Health and Safety Committee
- Wrote new Hazard Communication Manual
- Updated MSDS program
- Worked with management to improve facility safety
- Team member ensuring full OSHA compliance
- Supervised quality of sixty workers daily
- Trained new employees and scheduled jobs for facility

EDUCATION

Purdue University **May 1999**
Degree: Bachelor of Science in Health Physics
Minor: Biological Sciences

COURSES Non-ionizing radiation, Radioactive Waste Management, Industrial Hygiene Engineering Control, Occupational Diseases, Pharmaceutics, Nuclear Pharmacy 1 and 2, Nuclear Pharmacy Laboratory, Statistics for the Life Sciences, Biochemistry 1 and 2, Immunology, Genetics, Molecular Biology, Pathology, Epidemiology

AWARDS Porter County Kiwanis Scholarship; Free and Accepted Masons of Indiana Scholarship
J. Bonner Wampler Alumni Scholarship; Purdue University Alumni Scholarship

Professional Memberships: Health Physics Society
Purdue Student Branch of Health Physics Society

Accreditation: Indiana State Certified Emergency Medical Technician #42389

RSSI

6312 West Oakton Street
Morton Grove, IL 60053-2723
847-965-1999
Fax 847-965-1991

DAVID R. FERMIN

CURRICULUM VITAE

EXPERIENCE:

RSSI **9/98—Present**
Technician

- Program computer applications for laboratory analysis tasks including data acquisition, data management, and report generation for laboratory samples
- Technical and laboratory support including radioactive waste characterization, PC support and maintenance, low level alpha and beta internal proportional counting, radon analysis, and preparation of survey instruments for calibration

Molecular Pharmacology and Biological Chemistry, Northwestern University Medical School (Chicago, IL) **6/97—9/98**
Research Technician

- Designed and programmed a high throughput drug screening assay for the Beckman Biomek robotic workstation
- Programmed Visual Basic routines in Excel to automate data import, calculation, and graphing
- Designed and optimized a system for cloning, expression, and purification of target proteins using an *E. Coli* expression system
- Performed radiolabeling and assays with other techniques

Technology Support Services, Northwestern University (Evanston, IL) **9/95—6/97**
Senior Residential Networking Consultant

- Performed advanced troubleshooting of Ethernet networking for student computer users
- Managed and trained a group of Residential Networking Consultants
- Managed ResCon recruitment, application, interview, and selection process

UOP Incorporated (Des Plaines, IL) **6/96—9/96**
Chemical Engineering Intern—Yield Estimate Team

- Worked on project to test validity of a computer simulation for estimating product yields of Fluid Catalytic Cracking (FCC) reactors
- Developed Access databases to archive simulated data, commercial reactor data, pilot plant data, and previous yield estimate calculations for comparison and calculation
- Designed "front-end" data-management applications using Visual Basic

EDUCATION

Northwestern University, Robert R. McCormick School of Engineering 9/94—12/98
Degree: Bachelor of Science in Biomedical Engineering
Concentration: Biotechnology

JEFFREY E. ALICZ
2s731 Winchester Unit #3
Warrenville, Illinois 60555
(630) 393-6261 / jalicz@email.msn.com

QUALIFICATIONS SUMMARY

8 years of environmental, safety and health experience. Well versed in various types of radiological monitoring and sampling fieldwork. Additional experience with safety audits, hazard analysis and risk assessments. University-level studies included the design and administration of safety programs, legal aspects of safety, OSHA and EPA regulations, accident prevention principles, workers' compensation insurance, ergonomics, behavioral factors in safety, and research in safety.

EDUCATION

M.S. Industrial Management Northern Illinois University DeKalb, Illinois 1994 - 1996
Emphasis: Safety Systems

CONTINUING EDUCATION 1993 - 1999

Roosevelt University, Course: Quality Management 1998 - 1999
OSHA, Hazardous Waste Site Operations Training 1997
FEMA, Independent Study Program 1994 - 1995
Illinois Institute of Technology, Course: Chemodynamics Seminar: Environmental Engineering 1993

EMPLOYMENT HISTORY

Argonne National Laboratory, Environment, Safety & Health Division (ESH): Argonne, Illinois
Senior Health Physics Technician 1993 - present
Responsible for radiological monitoring and sampling support for remote manipulator hot cell operations, radioactive waste characterization and disposal programs, and various D&D projects including a plutonium glovebox facility and an experimental boiling water reactor. Participate in project planning sessions and review job procedures with regards to safe radiological work practices. Perform hazard analysis and risk assessments to determine appropriate personal protective equipment. Coordinate and issue site specific radiological safety training. Issue termination of unsafe operations and participate in preventive and corrective action proceedings. Provide effective contamination control during radiological emergencies. Maintain an air-sampling program to monitor airborne radioisotope emission rates. Assist in the implementation of effective hazardous waste minimization and disposal methods. Perform daily calibration tests and conduct annual quality assessments of radiological sampling equipment.

Argonne National Laboratory, Division of Educational Programs (DEP): Argonne, Illinois
Safety Management Co-op (Student Participation Program) 1992 - 1993
Conducted routine facility safety audits and recommended corrective actions in accordance with OSHA standards. Assisted in various industrial hygiene sampling methods (i.e. noise, asbestos, lead, confined spaces). Implemented periodic test requirements of GFCIs, eyewash stations and safety showers. Established chemical waste accumulation areas and assisted in the coordination of general building operations. Assisted in the evaluation of suitable emergency shelter areas and egress routes. Maintained inventories of facility equipment, hazardous waste chemicals and material safety data sheets.

Florida Plastics International Evergreen Park, Illinois
Production Specialist 1989 - 1992
Manufactured and inspected restaurant supplies and equipment for commercial use. Implemented corrective actions for work outside product specifications. Verified shipping invoices, evaluated new materials from suppliers, processed customer orders and resolved product return issues. Acted as a safety representative with issues concerning workplace safety, ventilation and waste reduction.

PROFESSIONAL AFFILIATIONS

Member, *American Society of Safety Engineers (ASSE)* 1999
Secretary, *NIU student chapter of the American Society of Safety Engineers (ASSE)* 1989-1992

CERTIFICATION

Pursuing recognition as a Certified Safety Professional (CSP) through the Board of Certified Safety Professionals (BCSP).

DAVID W. MATHEWS
5539 N. BARRINGTON RD
MORRIS, IL 60450
PHONE (815) 942-5783

GENERAL ELECTRIC CORP; MORRIS, IL. (1973-1993)
SENIOR SERVICES TECHNICIAN (1988-1993)

- Performed research and development investigations as directed. Trained employees or visitors for Radiation and Industrial Safety Certification.
- Coordinated Radiation Health and Safety program. Co-developed training and operational tests for prototype reactor on site fuel storage cask.
- Coordinated decommissioning of radioactive storage vessel. Maintained the analytical statistical methods control and standards program. Including operation and calibration of the Tennelec LB 5100W Low Bkg Alpha, Beta counter. Gamma Isotopic, Beta, Alpha and Liquid Scintillation counting equipment.
- Inspect work areas for safety practices and adherence to procedures. Report results and recommend corrective action. Respond to operating components request for special and/or unusual radiological surveys and advice.
- Proficient with the following instruments Ion chamber survey meter, Victoreen Panoramic survey meter, Bicon Ion chamber survey meter, Geiger-Mueller survey meter, Gas Proportional Alpha counter, Air proportional Alpha counter, BF Proportional Neutron counter, Scintillation survey meters-Gamma, Alpha, and Neutron.

NUCLEAR PROCESS OPERATOR (1973-1988)

- Developed operational and training procedures for Nuclear Assurance Cask (NAC); process facilitated transfer of fuel and prevented multimillion dollar law suite. Certified by NRC as Nuclear Process Operator.
- Interacted with production personnel and engineering to develop training and operational tests for REA Fuel Storage Cask for reactor on site storage of fuel.
- Identified stuck fuel storage basket problem. Resulting in improved inspection methods for new baskets prior to installation in fuel storage pool. Letter of accommodation in personnel file.

NUCLEAR FUEL, INC. WESTVALLEY, NY. (1964-1973)

- Nuclear Process Operator certified by AEC. Conducted tests and implemented procedures for PU-239 ion exchange column and glove box operation.

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MILITARY

UNITED STATES ARMY **(1960-1963)**

- Completed Basic and Advanced Electronics courses.
- Security clearance Top Secret.

EDUCATION/SPECIAL TRAINING

JOLIET COMMUNITY COLLEGE
Main course: Engineering Operator
Certified "Public Water Supply and Operation" (1978)

GENERAL ELECTRIC/NUCLEAR FUEL SERVICES INC.
(2 year full time Program)
Awarded Certificate Nuclear Regulatory Commission (1975)
Nuclear Physics, Advanced Math, Radiation Safety Regulations 10CFR-20, 61 and 72,
Analytical Chemistry, 40 hr course in ICRP-30 Regulations.

CERTIFICATES

"Radiation Protection-ICRP 30 Regulations"
"OSHA 10 hr course"
"EPA Industrial Waste Water Supply Operator"
"Environmental Certified Water Inspector"
"OSHA QA Visual Inspector"
"Emergency Medical Technician/First Responder"

IN HOUSE COMPUTER TRAINING

"Alpha 3, Paradox 3, Windows Excel 3.1 & 95, Word Perfect 5.0,

AFFILIATIONS

American Society of Safety Engineers
Volunteer Boy Scouts Assistant Troop Master
Board of directors Morris Soccer Association
Coached Youth Soccer
Assisted USA and ISI Swim Meets

INTERESTS

Golf, Fishing, Lapidary Arts

REFERENCES

Les Seifert Project Engineer EBWR D&D Project (708) 252-5100
Ron Peters Safety Advisor for BMW Constructors, (219) 922-5000
Brian Acton (PM) BMW (219) 922-5000
Rich Conley Safety Director at Zion Nuclear Station (847) 746-2084 Ext 2257

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SUMMARY

Proven problem solver with exceptional analytical organizational and interpersonal skills. Detail oriented, skilled in Industrial Safety, Radiation Safety, Decontamination and Decommissioning, Environmental Monitoring, Sampling & Analysis, Hazardous Materials/Waste Operations & Management and Occupational Health and Safety.

ACCOMPLISHMENTS

CONSTRUCTION SAFETY SERVICES INC. **(11-23-96)-(Present)**
BMW CONSTRUCTORS, INC.
EXXON & COM ED. #18 FOSSIL PLANT.

- Performed job orientation, safety meetings, audits, accident investigation, confined space training and supervision. Loss Prevention Observation's, JSO's and substance abuse program.

CONSTRUCTION SAFETY SERVICES INC. **(09-03-96)-(11-20-96)**
SAFETY ADVISOR FOR COM.ED.

- Performed training, provided daily safety audits at Zion Nuclear Facility. Provided first aid and accident investigation, job safety hazard analysis. Recommended engineering controls for employee protection. Advised supervision on confined space entry and plant operations training procedure clarification. Provided reports for safety meetings. Acted as plant safety advisor for Com.ED. personnel.

GN VENTURE BRIACEVILLE,IL **(03-18-96)-(05-28-96)**
SAFETY ENGINEER

- Performed training, provided daily safety audits and scaffold inspections, also provided confined space air monitoring at Braidwood Nuclear Facility. Monitored for benzene and provided entry monitoring for diesel oil storage tank. Responsible for approximately 250 employees. Also provided first-aid for various jobs. Recommended engineering controls for employee protection for various projects. No OSHA recordables in unit. Braidwood Nuclear Station, 1996 A2R05.

BURNS INT SECURITY SERVICES INC. LISLE,IL.
SECURITY GUARD BRAIDWOOD NUCLEAR FACILITY. (09-11-94)-(03-18-96)

- Prevent diversion of nuclear material and sabotage.

ESPO ENGINEERING WILLOWBROOK,IL **(02-03-94)-(05-13-94)**
ARGONNE NATIONAL LAB EAST
EWM.EBWR.D7D.FIELD ENGINEER.

- Interfaced with all ANL & contractor groups for decommissioning of Experimental Boiling Water Reactor. Identified & resolved potential difficulties and recommended cost effective modifications.